



United States General Accounting Office

Report to the Chairman, Committee on
National Security, House of
Representatives

April 1987

DEFENSE IRM

Investments at Risk for DOD Computers Centers



EXEMPTION STATEMENT A

Approved for public release

Distribution Unlimited

19970618 129

Accounting and Information
Management Division

B-271572

April 4, 1997

The Honorable Floyd D. Spence
Chairman, Committee on National Security
House of Representatives

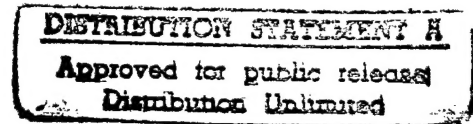
Dear Mr. Chairman:

This report responds to your request that we review the Department of Defense's (DOD) plans to consolidate, outsource, and modernize its computer center operations and assess whether DOD has an effective framework in place for making and executing these decisions. DOD and the individual military services have consolidated a number of their computer centers in recent years and contracted with the private sector for information processing services that were previously performed in-house. These actions were part of an effort to find better and less costly ways of meeting Defense information processing needs. DOD has recognized that there are opportunities for further consolidations since, according to DOD reports, about 40 percent of its computer centers still fall well below governmentwide minimum processing capacity targets.

You also asked us to perform a subsequent detailed review of the plans of the Defense Information Systems Agency (DISA) to consolidate and modernize DOD's megacenters, or central processing facilities. As agreed with your office, we will be reporting separately on this issue.

Results in Brief

DOD has recognized the need to continue reductions in the cost of its computer centers' operations through consolidation, modernization, and outsourcing, but it has not yet established an effective framework for making these decisions. This framework would include departmentwide policies and procedures critical to the success of its efforts to improve computer centers. These policies and procedures would establish targets for how many computer centers the Department actually needs, define how mainframe and mid-tier computer operations should be consolidated, and identify the numbers and skill mix of staff that are required to operate the centers, and what constitutes an optimum computer center. Defense also has no mechanism for ensuring that the best money-saving opportunities have been considered by the individual services and components or that consolidation efforts will conform to federal requirements or even meet the needs of the Department as a whole.



As a result, Defense services and components have developed individual strategies for consolidating and modernizing their computer centers that are inconsistent and contradictory to the Department of Defense as a whole and may well cause Defense to waste millions of dollars in computer center expenditures. For example, the consolidation plans of DOD's primary information processing service provider, the Defense Information Systems Agency, assume services and components will send DISA additional information processing business. Most of the services and components, however, are not planning to do so. Thus, DISA's planned investment, and in turn DOD's, in providing new information processing services may be wasted. In addition, the consolidation strategies of the military services and DOD components did not always fully address critical planning elements required by the Office of Management and Budget (OMB) requirements that could help reduce the risk of waste, including alternative analyses, high-level implementation plans, and funding plans. Further, we found that the OMB and departmental guidance, particularly in addressing mid-tier computer centers, was unclear. This resulted in inconsistent interpretation and reporting for these centers. Therefore, OMB and DOD do not have assurance that the computer consolidation strategies are sound.

Without better management over the implementation of its computer center strategies, Defense at best will only achieve optimization at the component level and forgo optimization for the Department as a whole. Moreover, Defense's chief information officer is now required by the Paperwork Reduction Act of 1995, the Clinger-Cohen Act of 1996, and the Fiscal Year 1997 Department of Defense Authorization Act to develop and implement a plan for a management framework with policies and procedures as well as effective oversight mechanisms for ensuring that major technology related efforts, such as the computer center consolidations, conform to departmentwide goals.

Scope and Methodology

In conducting our review, we reviewed and analyzed various DOD computer center consolidation plans and reported costs and assessed how these plans met OMB's Bulletin 96-02 requirements. We also compared DOD plans and practices to the practices and strategies employed by private-sector companies we visited during our review that have successfully consolidated computer centers. In addition, we met with consultants who advise computer center managers on improving services and with the General Services Administration's Office of Governmentwide Policy and Federal Systems Management Center. We conducted numerous

interviews with DOD officials to discuss their approach to consolidating and modernizing computer centers. We also discussed with OMB officials the OMB Bulletin governing computer centers and their views on DOD responses. Details of our scope and methodology are included in appendix I.

We did not validate the accuracy of the information provided by DOD on the numbers and costs of computer centers, the alternatives analyses, funding plans, and processing capacities. Our work was performed from March 1996 through January 1997 in accordance with generally accepted government auditing standards.

The Department of Defense provided written comments on a draft of this report. These comments are presented and evaluated at the end of this letter and are reprinted along with our more detailed evaluation in appendix II. The Office of Management and Budget provided oral comments on a draft of this report which are incorporated in the report as appropriate and discussed at the end of this letter.

Background

The federal government owns hundreds of computer centers that perform such services as processing agency software programs, providing office automation and records management, and assisting in the management of wide area computer networks. In recent years, the federal government has recognized that most of these centers operate below optimum capacity, use outdated technology, and perform redundant services. It has concluded that it can achieve significant dollar savings and operational efficiencies by consolidating computer centers or by acquiring its information processing services from the private sector.

In 1993, the Vice President's National Performance Review¹ recommended that the federal government take advantage of evolving technology and begin consolidating and modernizing its computer centers to reduce the duplication in information processing services and decrease information processing costs. To help implement this recommendation, a committee formed by the Council of Federal Data Center Directors² recommended that the Office of Management and Budget establish operating capacity targets for the consolidated centers and that federal agencies follow an

¹Report of the National Performance Review: Creating a Government That Works Better and Costs Less, September 7, 1993.

²The Council is a nonprofit organization that promotes the administration of information technology and computer centers.

approach successfully used by private-sector companies and other government agencies to plan, implement, and optimize their own computer centers.

The Committee's recommendations formed the basis of OMB guidance to promote computer center improvements and consolidations, which was issued in October 1995. This guidance, OMB Bulletin 96-02, Consolidation of Agency Data Centers, called on agencies to (1) reduce the number of their computer centers, (2) collocate small and mid-tier computer platforms in larger computer centers, (3) modernize their remaining centers in order to improve the delivery of services, and (4) outsource information processing services to other federal or commercial computer centers when aggregate computer center capacities were below minimum target sizes. Table 1 lists OMB's specific requirements.

Table 1: OMB Requirements for Computer Centers

Deadline	Agency action
March 1, 1996	<p>Submit an inventory of agency computer centers, including</p> <ul style="list-style-type: none"> —each computer center's name, location, and mission; —the basic hardware configuration of the centers, including the type of mainframe processors used and the use of small and mid-tier processors (those machines that fall in the range between a work station and mainframe and provide such services as client servers and network controllers); —the numbers and skill mix of staff; and —costs for hardware, software, staffing, utilities, communications, and contract services.
June 3, 1996	<p>Submit a computer center consolidation strategy for either (1) meeting minimum computer center sizes established by OMB or (2) describing how the agency planned to outsource its processing to other federal or commercial computer centers. This strategy was to include</p> <ul style="list-style-type: none"> —an alternatives analysis reflecting the technical feasibility and cost- effectiveness of alternatives—including outsourcing; —an architecture design, or technical solution, identifying the receiving and closing data centers and workload realignment as well as the communications architecture; —a high-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources; —a funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation; and —exceptions that could not be included in the consolidation plan.
September 2, 1996	<p>Submit a detailed implementation plan for consolidating or outsourcing, including a detailed technical architecture, a transition plan, a security and disaster recovery plan, a human resources plan, and an acquisition plan.</p>
June 1998	Complete consolidations.

OMB allowed agencies considerable discretion as to which data centers they chose to retain and close so long as their consolidation scenario was cost-effective and minimal data center target sizes were met. The target sizes OMB set were based on a standard industry measure for information processing: millions of instructions per second, or MIPS. OMB asked that centers using IBM mainframe computers operate at 325 MIPS and centers

using UNISYS operating systems³ operate at 225 MIPS.⁴ Further, OMB permitted agencies to justify not consolidating centers that fell below the target size if a particular center

- had a staff of less than five full-time employees,
- housed scientific processors and would otherwise be at least 90 percent of the minimal target size, or
- housed a large number of small and mid-tier processors and would otherwise be at least 90 percent of the minimal target size.

OMB's guidance is in keeping with recent congressional initiatives that focus on strengthening the planning and management of information technology efforts. In implementing the Paperwork Reduction Act and the Clinger-Cohen Act, OMB requires that information technology investments support core/priority mission functions and that they be undertaken by the requesting agency because no alternative private-sector or governmental source can efficiently support the function. These laws and OMB guidance also require agencies to establish an enterprisewide investment approach to information technology that includes selecting, controlling, and evaluating investments as part of an integrated set of management practices designed to link investments to organizational goals and objectives. Further, the National Defense Authorization Act for Fiscal Year 1997 requires the Secretary of Defense to report the Department's plan for establishing an integrated framework for management of information resources within the Department by March 1, 1997.⁵

OMB's guidance is also in keeping with the approach private-sector companies have taken in successfully consolidating and modernizing their own computer processing centers. We analyzed successful consolidation and modernization efforts carried out by three corporations and learned that they believed it was necessary to implement their strategies from a corporatwide perspective, rather than have separate components of their companies consolidate and modernize their own centers.⁶

These companies also ensured that from the outset of their consolidation efforts, they had clear and consistent policies and procedures governing

³Operating systems are the software that controls the execution of programs. An operating system may provide such services as resource allocation, scheduling, input/output control, and data management.

⁴OMB set its MIPS targets below the private sector's generally accepted targets because it believed that these targets were more achievable for government agencies and would result in significant savings.

⁵This plan was submitted to the Congress on March 14, 1997.

⁶We identified the corporations with successful computer center efforts through discussions with private-sector consultants and Defense officials.

how computer center services would be improved. This guidance spelled out such things as what constitutes an optimum computing center in terms of capacity and staff, what skills were needed to operate the centers, what cost and performance goals were relevant for the centers, and which services could be outsourced. In setting capacity goals, the private-sector companies we visited also generally attempt to reach targets that are substantially higher than the ones set by OMB—from 1,000 to 3,500 MIPS.

In addition, we learned that private-sector companies we visited during this review established strong oversight processes for ensuring that their computer center decisions were based on accurate, complete, and current information on cost, schedules, benefits, and risks; that all valid options for their computer center services were fully addressed; and that their current services were correctly benchmarked against comparable services.

DOD Recognizes Benefits of Further Consolidating, Modernizing, and Outsourcing Computer Centers

In 1996, Defense reported to OMB that it owned 155 computer centers that perform a variety of information processing related services for the services and components. Among other things, the centers run software programs developed by the military services and various Defense components and provide information security services, customer help desk services, and records management services. Sixteen of these centers are central processing facilities known as megacenters and are owned by DISA. The remaining 139 centers are service- or component-unique centers.

DOD also reported that it was continuing to further optimize and standardize its computer centers operations as part of departmentwide and intra-agency consolidations that had started in 1990 and continue today. Defense has recognized that these computer centers have been operating inefficiently and that they need to adopt new technologies and address the increasing loss of in-house technical expertise in order to continue supporting the Department's large and complex information infrastructure. We agree with DOD that there are still many opportunities for savings. In fact, table 2 shows that many of these reported centers operate below the minimum processing capacity targets established by OMB for government-owned computer centers and thus are good candidates for consolidation or outsourcing.

Table 2: Status of DOD Computer Centers at the Time of OMB Submissions (as of September 30, 1995)

Dollars in thousands

Service or component	Computer center costs ^a	Number of computer centers	Number of centers meeting OMB criteria for consolidation	Number meeting private-sector minimum capacity standard of 1000 MIPS
DISA	\$531,121	28	16	0
Other components	60,287 ^b	26	16	0
Army	135,321	59	3 ^c	0
Navy	56,724 ^d	14 ^e	14 ^e	0
Air Force	132,035	28	13 ^f	0
Total	\$915,488	155	62	0

^aCosts as defined in OMB Bulletin 96-02.^bDoes not include cost recovery for Defense Intelligence Agency. These costs are classified.^cArmy reported that 56 of its 59 centers, including its small and mid-tier centers, are used for remote or local processing or for unique service missions (e.g., National Guard, command and control) and therefore should not be considered for consolidation.^dThe Navy reported the costs of all its computer centers.^eThe Navy did not report the number of all its computer centers, only the mainframe centers were reported in its aggregate center inventory.^fAccording to Air Force officials, 11 of its 13 small and mid-tier data centers are exempt from consolidation because they meet the provisions of the national security exemption within the Clinger-Cohen Act, which they believe exempts combat ammunition systems from consolidation.

Source: DOD's OMB Bulletin 96-02 inventory submissions. We did not independently verify this information.

As table 2 indicates, 62 of DOD's 155 computer centers—about 40 percent—met OMB criteria for possible consolidation based on processing capacity targets. However, we believe that these numbers could be higher. As indicated in the table notes, many small or mid-tier centers were not considered as candidates for consolidation. According to OMB officials responsible for implementing the Bulletin, these centers should have been included unless otherwise exempted. Further, private-sector and government-sector studies have found that larger facilities allow organizations to economize on floor space, staff, and operating expenditures, and smaller centers tend to be cost-inefficient.⁷

⁷Council of Federal Data Center Directors' Federal Data Center Consolidation Committee, Consolidation of Federal Data Centers (February 1995) and KPMG Peat Marwick, Best Data Center Practices (December 1994).

Before OMB issued its computer center Bulletin 96-02, DOD had determined, based on industry practices, that consolidation would "position DOD to more effectively support common data processing requirements across services by leveraging information technology and resource investments to meet multiple needs." Since 1990, the Department has initiated and completed multiple intra-agency consolidations. In 1993, the megacenters were established as a result of (1) DOD's base closures and (2) other consolidation and cost reduction efforts. In establishing these centers, DOD expected to change its information processing environment from one that was stovepiped, or confined to individual military services and components, to one that supported information sharing DOD-wide. Accordingly, since 1990, DOD consolidated its computer center operations by moving the workload and equipment from 194 DOD computer centers into 16 DISA megacenters by fiscal year 1996, reporting a reduction in processing costs of over \$500 million.

After these consolidations, DOD initiated several studies that looked into the question of whether the remaining megacenters should be further consolidated, modernized, or outsourced. One study—done by the Defense Science Board on the question of outsourcing DOD functions in general—reported in August 1996 that processing at computer centers was more expensive than at private-sector computer centers and it recommended that DOD computer center services be outsourced.⁸

A second study—done by a private contractor on the question of outsourcing, modernizing, and consolidating DISA's megacenters for the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (C3I) in 1996—concluded that further consolidation and outsourcing of megacenter operations was feasible.⁹ The contractor reported that the megacenters' life cycle (10 years) cost could be cut by more than a billion dollars if the megacenters were consolidated to 6 from 16 and if certain computer center services—such as the customer help desk and those services associated with day-to-day operation of the centers—were fully outsourced.¹⁰

The Undersecretary of Defense, Comptroller, was also directed to submit a report on the feasibility of outsourcing DOD's megacenters to the House

⁸Report of the Defense Science Board Task Force on Outsourcing and Privatization, dated August 1996.

⁹Strategy Options for Defense Information Services, Final Report, Coopers and Lybrand Consulting, dated February 1996.

¹⁰We did not validate the savings estimate in this study.

Appropriations Committee¹¹ by January 1, 1996. In this report, which was submitted to the Congress on December 26, 1996, the Comptroller largely agreed with the recommendations made by the contractor study described above and supported DISA's proposed management plan to implement those recommendations. Some of our concerns with this plan, which is DISA's consolidation strategy, are discussed in more detail in the next section of this report. In addition, as noted in the beginning of this report, we will be reporting separately on our detailed review of DISA's plans.

Consolidation Strategies Are Inconsistent and Fall Short of Meeting OMB Requirements

While DOD and its components have made progress in consolidating and finding opportunities to optimize and outsource many of the functions of its computer center operations, DOD is still missing opportunities to achieve even greater savings under its current approach. The Defense leadership has chosen to allow the individual military services and components to carry out their computer center consolidation and modernization efforts independent of any departmentwide framework. In fact, the Assistant Secretary of Defense for C3I, as part of his guidance when forwarding the OMB Bulletin, stated "that each Service and Defense Agency has the flexibility to reduce its data centers in a manner that is consistent with the DOD Component's goals, management philosophy, and environment as long as such reductions occur within the framework of the OMB guidelines." This decision has resulted in inconsistent and contradictory strategies which fall short of meeting OMB's requirements and what we believe to be the intent of OMB's Bulletin. We also learned that some of the inconsistency and incompleteness of reported plans and strategies was caused, in part, by DOD's broad and inconsistent interpretations of the OMB Bulletin. Appendix IV provides a detailed analysis of how the military services and components responded to OMB's Bulletin. The following discussion highlights our findings.

Strategies Vary Widely

As shown in the two tables that follow, the computer center consolidation plans of the individual military services and components submitted to OMB to date vary widely. For example, the Air Force, the Army, three Navy commands, and three Defense components plan to further consolidate in-house, while other parts of the Army and Navy, as well as the Defense Investigative Service, are choosing to keep their computer center operations in-house without further consolidation. Many of the strategies reflect a move toward mid-tier solutions without considering the potential

¹¹As directed by the House and Conference Reports accompanying the Fiscal Year 1996 Defense Appropriation Act.

for consolidation. Only the National Imagery and Mapping Agency and parts of the Navy chose to outsource (to DISA) their center operations. Further, just two services—the Air Force and the Army—considered inter-service consolidation of their respective computer centers within the Pentagon, and this action was already underway prior to the OMB Bulletin. Table 3 describes the approaches the services and components have decided on. Table 4 compares the strategies.

Table 3: Computer Center Consolidation and Modernization Approaches

Agency	Approach
DISA	Continue to consolidate to 16 megacenters and then to further consolidate the 16 megacenters and outsource certain services. Attract new mainframe and mid-tier processing business from other components and military services.
Air Force	Continue its ongoing modernization, moving to a client-server architecture and outsourcing efforts at three of its computer centers, and consolidate its Pentagon Center with the Army's. Identify computer centers that can transfer applications from mainframe to other environments. Consolidate or outsource any remaining computer centers.
Army	Retain local area networks and file servers at the installation level. Consolidate its center in the Pentagon with Air Force. Continue with in-house operations for its Personnel Information Systems Command and Army Reserve Personnel Data Centers, pending further analysis on migration to client-server architecture.
Navy	Transfer the workload from eight centers to DISA. Retain the Navy Medical Information Management Center computer in-house pending further review of alternatives. Transfer the remaining processing that is below MIPS target levels to new, in-house, mid-tier computers.
Defense Commissary Agency	Moving to a client-server architecture.
Defense Intelligence Agency	Continuing to consolidate and modernize in-house systems and outsource some services.
Defense Investigative Service	Its center exceeds minimum consolidation thresholds. Moving to a client-server architecture.
Defense Logistics Agency	Mainframe processors consolidated. Continuing in-house consolidation of mid-tier centers. Explored using other federal data centers for potential outsourcing; analysis supported retaining the work in-house.
National Imagery and Mapping Agency	Will transfer new system work to DISA's megacenters.
Defense Special Weapons Agency	In final stages of consolidating its three computer centers into two in-house computer centers.

Table 4: Comparison of the Consolidation and Modernization Strategies

Agency	Maintain status quo	Consolidate in-house	Outsource centers	Outsource selected services	Attract new business
DISA		X		X	X
Air Force		X		X	
Army	X	X			
Navy	X	X	X		
Defense Commissary Agency	X				
Defense Intelligence Agency		X		X	
Defense Investigative Service	X				
Defense Logistics Agency		X			
National Imagery and Mapping Agency			X		
Defense Special Weapons Agency		X			

We found that some of these strategies had contradictions that might well have been prevented had Defense better coordinated its computer center efforts. For example, as table 3 notes, the Department's primary information processing service provider, DISA, intends to modernize and consolidate its megacenters and begin to offer mid-tier processing services to attract additional business from the services and components. DISA believes that significant reductions in the cost of operations could be achieved and that much of DOD's computer processing is well suited for consolidation to DISA's computer center operations.

However, it is clear from the strategies described above that most of the services and agencies are not considering sending additional business to DISA, and DISA has no authority to require the services and components to make such transfers. The Army, the Air Force, and the Defense Logistics Agency, for example, do not plan to increase their use of DISA services. Together, about \$385,000 of the reported \$915,500 spent on computer center operations is outside of DISA.

Consolidation Strategies Do Not Meet OMB Requirements

Most of the consolidation strategies submitted by the military services and components to OMB failed to fully address all of the planning elements addressed in the Bulletin. For example, some services and components did

not provide sufficient information to show that they had (1) performed thorough analyses of their planned options, (2) demonstrated that they had ensured that they have the correct technical solutions to their computer center operations, (3) prepared even a high-level implementation approach to the major tasks associated with consolidation, or (4) provided estimates on how much it will cost to consolidate and modernize. Therefore, DOD and OMB do not have assurance that the services and components are addressing these critical planning elements in carrying out their strategies or that the approaches they have chosen are sound.

Table 5 summarizes how the individual services and components responded to the OMB Bulletin. ("N" meaning they didn't respond, "Y" meaning they did respond, "P" meaning they partially responded, and "N/A" meaning not applicable.) The table illustrates that the Defense Intelligence Agency, Defense Investigative Service, and Defense Special Weapons Agency were the only DOD components in compliance with all of the OMB requirements. The Army was the only other component to have submitted a complete alternatives analysis for its computer centers. The table also shows that the Air Force, DISA, the Defense Commissary Agency, and the Defense Logistics Agency either partially addressed or did not address the requirements. As noted earlier, a more detailed analysis of the responses is provided in appendix IV.

Table 5: GAO Analysis of How Services and Components Responded to OMB Requirements for Consolidation Strategies

OMB requirements	DISA	Air Force	Army	Navy	DeCA	DIA	DIS	DLA	NIMA	DSWA
Alternatives analysis reflecting technical feasibility and cost-effectiveness of alternatives including outsourcing?	P	P	Y	P	N	*	Y	P	P	Y
Architecture design identifying receiving and closing centers and workload realignment as well as communications architecture?	N	P	Y	P	N	*	*	P	Y	Y
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources?	N	P	P	P	N	*	*	P	P	Y
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation?	N	P	P	P	N	*	*	P	N	Y
Exceptions identified that could not be included in the consolidation plan?	N/A	Y	Y	N/A	N	Y	Y	Y	N/A	Y

*Agency reported that its computer centers met OMB's consolidation threshold for processing capacity.

Legend

Y=Responded.

N=Did not respond or response was inadequate.

P=Partial response provided. (Partial responses are explained in more detail in appendix IV.)

N/A=Did not request or did not apply.

As reflected in table 5, we determined that the DOD submissions did not always comply with the OMB requirements. When we discussed this with DOD officials, they said that their submissions did not always describe their consolidation plans for their non-mainframe computer centers because some of the components believed that the guidance only applied to mainframes and others believed that the guidance did not apply to actions already underway and approved through DOD's life cycle management process. These officials had interpreted the Bulletin as requiring that non-mainframe computer centers be included in the inventory but not in the consolidation strategies, unless they affected the center's meeting the minimum target size. When we discussed this with OMB officials, they disagreed with DOD's interpretation. They stated that the Department's non-mainframe centers also should have been addressed in both the inventories and the consolidation strategies.

We also asked OMB officials why they required submissions from each of the military departments and one from DOD. OMB officials told us that they required four separate submissions based on their interpretation of the Paperwork Reduction Act of 1995, which defined DOD as the Department of Defense and the three services. However, they further stated they would have preferred to receive from DOD a departmentwide inventory, consolidation strategy, and implementation plan that clearly reflected a departmentwide analysis and direction for DOD decisions on computer centers. We believe such a departmentwide approach is consistent with the intent of the Bulletin and the Clinger-Cohen Act to ensure that opportunities to consolidate centers among services and components were maximized. Instead, these officials stated that OMB received separate and conflicting responses that failed to provide a clear view of consolidation across components. OMB officials further stated they had difficulty determining how many centers DOD currently had and planned to have after the consolidations.

When we discussed the multiple submissions from DOD with Defense officials, the Assistant Secretary of Defense for C&I acknowledged that the military services and DOD components had developed individual plans. However, he believed that separate plans were allowed by the OMB Bulletin and that OMB did not request a departmentwide strategy or plans. However, the Assistant Secretary agreed that the Department needs a departmentwide policy guidance and framework as DOD seeks additional opportunities for economies and efficiencies in its data center operations. The Assistant Secretary also agrees that future decisions should be based on sound business analyses and that the Clinger-Cohen Act provides a context and leverage for these guidelines.

DOD Lacks Critical Decision-making Tools for Consolidation Efforts

Although DOD has been consolidating its computer centers since 1990, we found, and the Assistant Secretary of Defense for C&I agreed, that DOD lacks several decision-making tools that are imperative to any computer consolidation and modernization effort. First, it has not set targets or established policy for basic things, such as how many computer centers the Department actually needs, the numbers and skill mix of staff that are required to operate the centers, and what constitutes an optimum computer center. It also has no mechanism for ensuring that the best money-saving opportunities have been considered by the individual services and components or that consolidation efforts will conform to federal requirements or even the needs of the Department as a whole. As discussed earlier in this report, private companies we visited during our

review found that setting such targets—through policies and procedures—and oversight mechanisms were key to the success of their consolidation efforts. Without them, DOD will have difficulty identifying problematic strategies and preventing some of its computer center investments from being wasteful.

DOD Has No Departmentwide Policies and Procedures on Computer Centers

The private companies we visited during our review found it necessary to direct their computer center consolidation efforts from a corporatewide perspective and to clearly delineate the makeup and number of centers that the companies were aiming for. More specifically, these companies established policies that defined what constituted an optimum computer center in terms of processing capacity and the numbers and skill mix of its staff; how many centers the corporation needed; what computer center functions were so critical to carrying out the company's mission that they could not be outsourced; what cost and performance goals were relevant for the centers; and how the centers should be compared, or benchmarked, to more successful operations. They also established corporatewide procedures for implementing these policies.

During our review, we also learned that DOD visited private companies, including the ones we visited. DOD officials benchmarked this industry experience to determine how best to prepare, justify, and implement prior departmentwide efforts to consolidate and standardize computer centers from 1990 to 1994. For example, DOD learned examples of private-sector criteria that could be used to select megacenters and the level of processing capacity and expandable floor space these centers should have. However, it did not use the lessons learned from these visits to prepare departmentwide policies and procedures.

As a result, individual services and components do not have a consistent basis for determining what constitutes an optimum center; what their performance or staffing targets should be; or which functions are inherently governmental or can be outsourced. For example, these services and components do not have departmentwide targets that they can set as goals for the processing capacities of their mainframe or mid-tier centers.

In a March 1996 report¹² on DOD's acquisition of computer centers, DOD's inspector general specifically noted that Defense lacked complete

¹²Acquisition of Computers That Process Corporate Information (DOD/OIG Report 96-081, March 5, 1996).

“policies and procedures on acquiring and managing the proper mix of mainframe and mid-tier computers to process corporate data” and that without such policies and procedures—especially those for mid-tier processors—DOD’s potential for acquiring excess computer processing capabilities increases. The Inspector General also noted that if DOD would coordinate its processing needs it could, among other things, (1) take advantage of the open systems¹³ infrastructure concept to resolve operational problems, (2) better track and report information management costs on a DOD-wide basis, (3) better manage the transition from existing outdated systems to migration systems, and (4) improve management of computer security. DOD agreed with the Office of the Inspector General that it should establish procedures for evaluating and providing corporate information processing and storage requirements on a DOD-wide basis rather than on an individual program basis. However, DOD noted that it should proceed with care in implementing this recommendation because of its implications for centralized management and control. According to officials in the office of the Assistant Secretary for C3I, DOD plans to determine if, and to what extent, it has a mid-tier computing problem before issuing policies and procedures to address that problem.

Under the Paperwork Reduction Act of 1995 and the Clinger-Cohen Act, passed in 1996, the Assistant Secretary of Defense for Command, Control, Communications and Intelligence, as DOD’s Chief Information Officer (CIO), is supposed to develop and implement management policy and procedures to ensure that major information technology related efforts conform to departmentwide goals. In a memorandum dated November 6, 1995, the Assistant Secretary expressed an intent to monitor the consolidation initiatives to (1) ensure consistent interpretation and implementation of OMB Bulletin 96-02 across the Department, (2) ensure that consolidation efforts are consistent with the DISA plans, and (3) identify issues and develop strategies for resolving them quickly. Accordingly, the Assistant Secretary set up an advisory group to provide policy guidance for the Department’s efforts to consolidate and outsource computer center operations. However, this group has not yet prepared this critical guidance nor has it been effective in achieving its stated monitoring objectives.

DOD Has No Means of Ensuring That Best Opportunities Are Identified

Under the Clinger-Cohen Act, the Secretary of Defense, with the advice and assistance of the CIO, is responsible for establishing a mechanism for ensuring that the military services and components have considered the best investment options and consolidation efforts that will meet the needs

¹³Computer applications that can communicate with each other across a network and across computer applications that use a common operating system interface.

of the Department as a whole. In its guidance to agencies on evaluating information technology investments, OMB suggests that such a mechanism take the form of an investment review board, or senior management team, that would review information technology funding decisions. In their decision-making process, the team would consider such things as strategic improvements versus maintenance of current operations, new projects versus ongoing projects, risks, opportunity costs, and budget constraints. The Assistant Secretary C3I also charged the advisory group discussed above with the responsibility for providing oversight for computer center consolidation efforts. Yet, to date, neither the advisory group nor any other DOD component has provided this oversight. The Assistant Secretary C3I believes that his authority as DOD's chief information officer for providing such oversight has been strengthened by the Clinger-Cohen Act. However, he also believes that his office lacks the staff and departmentwide support to establish such oversight.

Without this important oversight mechanism, DOD does not have a means for assessing whether the individual services and components considered the cost-effectiveness and technical feasibility of their computer center alternatives from a departmentwide perspective and whether their implementation approaches, schedules, and funding plans are realistic. This also precludes Defense from having an opportunity to review the consistency of the individual plans and identify and recommend areas where even more monetary and efficiency gains could be achieved through inter-service and component efforts.

Conclusions

Without better coordination and oversight of computer center consolidation efforts, the best Defense can hope to achieve from its computer center consolidations is optimization at or below the component level. It will certainly miss out on the chance to ensure that the most investment worthy opportunities are identified and implemented, such as those that involve services and components merging their computer centers. Moreover, millions of dollars in computer center investments and operating expenses may well end up being wasted since individual components and services are planning without departmentwide information processing needs in mind and without the benefit of clearly defined organizationwide policies and procedures for the consolidation efforts and effective oversight mechanisms. Having centralized coordination for computer center optimization efforts and strong policies, procedures, and oversight were integral to the success of the corporations

we visited in their efforts to consolidate computer centers. They should be for Defense as well.

Recommendations

We recommend that the Secretary of Defense direct the Department's Chief Information Officer to develop an integrated, departmentwide plan for improving the cost and operations of its computer centers. Until this plan is approved by the Secretary, we further recommend that the Secretary of Defense limit any capital investments in the Department computer centers to investments that meet critical technology needs to operate the DOD computer centers. The Department's CIO should certify that these investments comply with departmentwide goals and technical standards.

We also recommend that as a basis for this plan and for future decisions concerning consolidation, modernization, and outsourcing of computer centers, Defense's Chief Information Officer develop policies and related procedures that address the following:

- (1) what constitutes an optimum computer center in terms of processing capacity and staff numbers and skills;
- (2) how many computer centers are needed;
- (3) which of its computer center operations are inherently governmental and/or require component-unique centers solutions and thus cannot be consolidated or outsourced;
- (4) how DOD should compare its computer center services with those of other public-sector and private-sector services in terms of cost, speed, productivity, and quality of outputs and outcomes; and
- (5) which cost and performance goals are relevant for comparing departmentwide alternatives.

We also recommend that Defense's Chief Information Officer establish or incorporate within its existing processes, as practical, the necessary oversight to ensure that the above recommended departmentwide plan and future computer center consolidation, modernization, and outsourcing decisions (1) are being developed in accordance with the above policies and procedures, (2) are based on a sound analysis of alternatives, and (3) consider the goals and needs of the entire department.

Finally, we recommend that the Director of the Office of Management and Budget (1) clarify its Bulletin, particularly in regard to mid-tier consolidation criteria and its intent to have an integrated Department of Defense submission and (2) require the Department of Defense to replace its prior multiple submissions in response to this new guidance with an integrated departmentwide submission that contains a departmentwide inventory of computer centers, a departmentwide consolidation strategy, and a departmentwide implementation plan.

Agency Comments and Our Evaluation

The Department of Defense provided written comments on a draft of this report. OMB provided us with oral comments. DOD concurred with our recommendation on providing oversight over its computer center efforts and partially concurred with our recommendation to develop policies and procedures to guide computer center decisions. However, DOD did not concur with our recommendation to limit any capital investments in the Department's computer centers until an integrated, departmentwide consolidation plan is prepared. Defense's response to this report is summarized below, along with our evaluation. Appendix II contains Defense's comments along with our more detailed evaluation.

DOD agreed that it needs to develop a prudent framework for achieving potential savings through its future computer center consolidation, modernization, and outsourcing decisions. DOD added that it is developing such a framework as part of its effort to implement the Clinger-Cohen Act. DOD also questioned the need for an integrated consolidation and outsourcing plan since the Department has already consolidated many of its computer centers, with significant reported savings, without such a plan. However, during our review, DOD officials acknowledged that unlike prior consolidation efforts, DOD has allowed the components considerable flexibility in their current consolidation efforts, without strategic direction from the Department. Thus, we continue to believe that an integrated, departmentwide plan is needed to show that the Department's computer center decisions reflect sound choices for meeting departmentwide processing needs and not just those of the individual components.

In discussing our recommendation on developing policies and procedures for making consolidation and outsourcing decisions, DOD agreed that these are necessary. However, DOD believed that it should complete its development of an integrated management framework for implementing the Clinger-Cohen Act before developing the specific policies and procedures we recommended. We are encouraged by the Department's

effort to begin to develop a management framework for implementing the Clinger-Cohen Act, especially if it includes the policies and procedures we recommend in this report. The report detailing DOD's plans for this framework was submitted to the Congress on March 14, 1997. Consequently, if DOD intends to include these policies and procedures in the framework, we believe it should limit making computer center decisions and investments to those that meet critical technology needs to operate the centers until the framework is finalized.

In commenting orally on this report, OMB stated that it believed our report overemphasized the importance of consolidating mid-tier processors within the context of OMB Bulletin 96-02. We disagree; we continue to believe that the consolidation strategy needs to include mid-tier processors as they are a vital component of the services offered by the computer centers.

We are sending copies of this report to the Ranking Minority Member of your Committee and the Chairmen and Ranking Minority Members of the House and Senate Committees on Appropriations, the Senate Committee on Governmental Affairs, the House and Senate Committees on the Budget, the Senate Committee on Armed Services, and the House Committee on Government Reform and Oversight. Also, we are sending copies to the Secretaries of Defense, the Army, the Navy, and the Air Force; the Department of Defense Chief Information Officer; the Director of the Defense Information Systems Agency; the Director of the Defense Logistics Agency; the Director of DISA's Western Command; the Director of Office of Management and Budget; and other interested parties. Copies will be made available to others upon request.

If you have any questions about this report, please call me at (202) 512-6240 or Mickey McDermott, Assistant Director, at (202) 512-6219. Other major contributors to this report are listed in appendix IV.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'J. Brock, Jr.', with a stylized, flowing script.

Jack L. Brock, Jr.
Director, Defense Information and
Financial Management Systems

Contents

Letter	1
Appendix I Scope and Methodology	26
Appendix II Comments From the Department of Defense	28
Appendix III Detailed Information About Computer Centers	36
Appendix IV Analysis of DOD Service and Component Responses to OMB	38
Appendix V Major Contributors to This Report	48
Tables	
Table 1: OMB Requirements for Computer Centers	5
Table 2: Status of DOD Computer Centers at the Time of OMB Submissions	8
Table 3: Computer Center Consolidation and Modernization Approaches	11
Table 4: Comparison of the Consolidation and Modernization Strategies	12

Table 5: GAO Analysis of How Services and Components Responded to OMB Requirements for Consolidation Strategies	14
Table III.1: Number of Mainframes and Mid-tier and Small Processors Owned by the Services and Components	36
Table III.2: MIPS of the Individual Services and Components	37
Table IV.1: DISA's Consolidation Strategy	38
Table IV.2: Air Force's Consolidation Strategy	39
Table IV.3: Army's Consolidation Strategy	40
Table IV.4: Navy's Consolidation Strategy	41
Table IV.5: Defense Commissary Agency's Consolidation Strategy	42
Table IV.6: Defense Intelligence Agency's Consolidation Strategy	43
Table IV.7: Defense Investigative Service's Consolidation Strategy	44
Table IV.8: Defense Logistics Agency's Consolidation Strategy	45
Table IV.9: National Imagery and Mapping Agency's Consolidation Strategy	46
Table IV.10: Defense Special Weapons Agency's Consolidation Strategy	47

Abbreviations

BRAC	Base Realignment and Closure
C3I	Command, Control, Communications, and Intelligence
CIO	Chief Information Officer
DeCA	Defense Commissary Agency
DIA	Defense Intelligence Agency
DIS	Defense Investigative Service
DISA	Defense Information Systems Agency
DLA	Defense Logistics Agency
DOD	Department of Defense
DSWA	Defense Special Weapons Agency
MIPS	millions of instructions per second
NIMA	National Imagery and Mapping Agency
OMB	Office of Management and Budget

Scope and Methodology

To assess whether DOD has an effective framework in place for making and executing its computer center decisions, we interviewed staff and obtained documentation from the following federal activities:

- the Office of Management and Budget's Office of Information Policy and Technology Branch, which has responsibility for overseeing agency implementation of OMB Bulletin 96-02;
- the General Service Administration's Office of Governmentwide Policy and Federal Systems Management Center, which provided documentation on matters federal agencies should consider when making consolidation, optimization, or outsourcing decisions;
- the Office of the Assistant Secretary of Defense, Command, Control, Communications, and Intelligence, which is the office of DOD's Chief Information Officer;
- various offices of the Defense Information Systems Agency, primarily in Arlington, Virginia; and
- Army, Navy, and Air Force staffs and offices in Arlington, Virginia, with responsibility for making decisions on consolidating, optimizing, or outsourcing their computer center operations.

We also met with managers from corporations that had successfully consolidated, modernized, and outsourced their computer centers. We identified these corporations through discussions with private-sector consultants and Defense computer center officials. The corporations contacted were

- Boeing Computing Service, Bellevue, Washington;
- Electronic Data Systems, Plano, Texas; and
- GTE Corporation, Fairfax, Virginia.

Through these interviews and related documentation, we analyzed how these companies strategically direct and oversee their decisions on alternatives and how they determine the cost and measure the performance of their computer center operations.

We also met with consultants who advise computer center managers on improving their services. The consultants contacted were the Center for Naval Analyses, Compass America, Inc., Coopers and Lybrand, and the Gartner Group. In these discussions, we identified best practices and important performance measures that they believe well managed computer centers should use to benchmark their performance with other computer centers. In addition, we interviewed senior officials at the

Defense Science Board to discuss the Board's high-level study done for DOD management on the outsourcing of select DOD activities, including its computer centers.

Finally, we met with DOD officials in the Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence to discuss their actions to implement a departmentwide decision-making framework for making computer center investment decisions. To assess the effectiveness of DOD's framework, we compared the framework with best practices used by leading organizations and the Clinger-Cohen Act. Also, through this office, we obtained and analyzed DOD's submissions to OMB in compliance with OMB Bulletin 96-02 to determine whether these submissions met OMB's requirements and had been prepared to meet departmentwide information processing needs. We did not validate the accuracy of the numbers provided by DOD on its computer centers.

Our work was performed from March 1996 through January 1997 in accordance with generally accepted government auditing standards. We performed our work primarily at the office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence and at DISA headquarters offices in Arlington, Virginia.

Comments From the Department of Defense

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



COMMAND, CONTROL,
COMMUNICATIONS, AND
INTELLIGENCE

ASSISTANT SECRETARY OF DEFENSE

6000 DEFENSE PENTAGON
WASHINGTON, DC 20301-6000

March 10, 1997



Mr. Gene L. Dodaro
Director Accounting and
Information Management Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Dodaro:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) Draft Report, "DEFENSE IRM: Investments at Risk for DoD Computer Centers," version dated March 4, 1997 (GAO Code 511348; OSD Case 1294).

We believe that any assessment of the DoD's plans to further consolidate, outsource, and modernize its data centers should be discussed within the context of our activities over the past several years.

By any objective measure, efforts by the DoD to achieve economies and efficiencies in data center operations is a success story. Well before OMB Bulletin 96-02, "Consolidation of Agency Data Centers," was issued, DoD embarked on a three phased approach to data center consolidations.

Phase I began in 1989 with a study, "Consolidate ADP Operations and Design Centers in DoD," to determine the economic feasibility of consolidating computer operations. Among other things, this study consisted of (a) visits to over 30 industry and DoD sites, (b) case studies and analyses of individual Service consolidation plans, and (c) alternatives for consolidation across Service/Agency boundaries.

The study was presented to the Deputy Secretary of Defense and reviewed by an Executive Level Group (ELG) as part of an overall evaluation of DoD information management. The ELG, a Federal Advisory Board, was comprised of both DoD and industry experts. It recommended a more evolutionary approach within the Services/Agencies and supported intra-Service/Agency consolidations, rather than the large-scale inter-Service/Agency consolidation as recommended in the DoD study.



Appendix II
Comments From the Department of Defense

The Deputy Secretary of Defense accepted the ELG recommendation, and his decision was recorded in Defense Management Report Decision (DMRD) 924, dated November 18, 1990. As a result of these intra-Service/Agency consolidations, over \$800 million was saved, and nearly 200 data centers were consolidated to 59.

Early in 1992, the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C3I)) convened a group to determine how the Defense Information Infrastructure should be managed to ensure an end-to-end information transfer capability which is protected, interoperable and cost-effective. During its approximate five months of deliberations, the group benchmarked DoD practices against those of the private sector -- particularly those that had undertaken large-scale data center consolidations.

Among other things, the group proposed inter-Service data center consolidations to make DoD's computing more effective and efficient. On September 15, 1992, the Deputy Secretary of Defense signed DMRD 918, "Defense Information Infrastructure," which included the approval to transfer the management and workload control of 59 data centers to the Defense Information Systems Agency (DISA).

Consistent with the practices of commercial, world-class information technology organizations, DISA developed a plan for consolidating the newly transferred data centers into 16 larger centers (commonly called Defense Megacenters). In February 1993, DISA recommended that its proposed consolidation plan be included as part of the Secretary of Defense's submission to the Base Realignment and Closure Commission (BRAC) of 1993. DISA's proposal was submitted to the BRAC and approved by the Commission, the President, and the Congress. Savings from these inter-Service consolidations, under the auspices of BRAC '93, are estimated to be in excess of \$450 million. Recurring savings are projected to be over \$200 million, and BRAC as well as non-BRAC consolidations are projected to result in the elimination of about 3,200 positions.

We believe that our efforts over the last six years reflect a sound, realistic, and business approach to data center consolidation. The approach was structured, planned, and endorsed by many knowledgeable individuals and forums. Moreover, it was based on business case analyses and commercial practices.

Now, DoD needs to determine whether further economies and efficiencies are possible, and if so, what strategies should be employed to reap these savings. OMB Bulletin 96-02 is but one vehicle that is being used to identify potential opportunities.

See comment 2.

Appendix II
Comments From the Department of Defense

See comment 3.

Contrary to GAO's view, we believe DoD correctly responded to the OMB requirements in terms of submitting individual DoD Component plans to OMB, and permitting the DoD Components the flexibility to exclude mid-tier computing from these plans.

See comment 4.

In addition to understating DoD's previous consolidations, we believe that GAO has misinterpreted some of the information provided to OMB. For example, in Table 2 of the GAO report, Army is accurately shown as having reported 59 computer centers that satisfy OMB's definition of a data center. It also accurately shows that only three of these centers meet the OMB criteria for consolidation. However, GAO has erroneously concluded that Army did not even consider small or mid-tier centers as candidates for consolidation.

Army surveyed and reported all of its data centers employing more than four Full Time Equivalency personnel. However, the majority of the sites reported support remote Defense Megacenter operations (e.g., 29 sites) and/or local computing and system networks (e.g., 12 sites). GAO failed to acknowledge a minimum core staff and supporting peripheral equipment are needed at remote, distributed centers to manage: (a) input and output distribution from the DMCs, and (b) other information management functions such as end-user security, local area network management, and equipment maintenance.

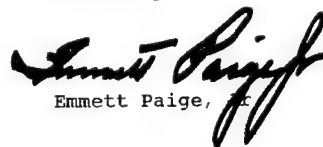
With the exception of the three candidate sites recommended by Army for consolidation, the remaining 15 sites support unique Service missions such as civil works, command and control, National Guard, Selective Service, and research and development.

See comment 5.

The enclosures provide additional comments on the GAO report. Specifically, Enclosure 1 includes the Department's response to the recommendations. You will note that we non-concur, partially concur, and concur with Recommendations 1, 2, and 3, respectively. We defer to the Office of Management and Budget on Recommendation 4. Enclosure 2 contains an annotated copy of the report including our technical comments.

We appreciate the opportunity to comment on the draft report.

Sincerely,


Emmett Paige, Jr.

Enclosures

Appendix II
Comments From the Department of Defense

GAO DRAFT REPORT, VERSION DATED MARCH 4, 1997
(GAO CODE 511348) OSD CASE 1294

"DEFENSE IRM: INVESTMENTS AT RISK FOR DOD
COMPUTER CENTERS"

DEPARTMENT OF DEFENSE COMMENTS

RECOMMENDATIONS

RECOMMENDATION 1: The GAO recommended that the Secretary of Defense direct the Department's CIO to develop an integrated, department-wide plan for improving the cost and operations of its computer centers. Until this plan is approved by the Secretary, GAO further recommended that the Secretary of Defense limit any capital investments in the Department computer centers to investments that meet critical technology needs to operate the DoD computer centers. These investments should be certified by the Department's CIO as being compliant with department-wide goals and technical standards. (p. 30/GAO Draft Report)

DOD RESPONSE: Non-concur. We intend to fully comply with the spirit and intent of the Clinger-Cohen Act to include developing a prudent framework for making sound data center in-house versus outsourcing decisions. This framework will be supported by factual information, and grounded in realities -- practical, political, and otherwise. However, neither the findings or conclusions presented in the GAO report or our internal evaluation warrant limiting capital investments until such a framework is developed or DoD Component plans are integrated. In fact, as reflected in our comments, we question the requirements and need for an integrated plan at this time.

By any measure, the Department has achieved significant economies and efficiencies by pursuing an evolutionary approach to consolidation where Services/Agencies initially consolidated along intra-agency lines. Subsequently, inter-agency consolidations occurred. We are currently assessing additional opportunities to optimize, consolidate, and/or outsource. This model has served us well, and there is no substantial evidence to indicate it may not be appropriate for the future.

RECOMMENDATION 2: The GAO recommended that, as a basis for this plan, and for future decisions concerning consolidation,

Enclosure 1

Now on p. 19.

Appendix II
Comments From the Department of Defense

modernization and outsourcing of computer centers, the DoD Chief Information Officer develop policies and related procedures that address the following:

- what constitutes an optimum computer center in terms of processing capacity and staff numbers and skills,
- how many computer centers are needed,
- which of its computer center operations are inherently governmental and/or require component-unique center solutions, and thus can not be consolidated or outsourced,
- how DoD should compare its computer center services with those of other public and private sector services in terms of cost, speed, productivity, and quality of outputs and outcomes, and
- which cost and performance goals are relevant for comparing department-wide alternatives. (pp. 31-27/GAO Draft Report)

DOD RESPONSE: Partially concur. The DoD Chief Information Officer intends to develop policies and procedures for making consolidation and outsourcing decisions. While it would appear appropriate to address some of the elements that GAO has identified, we must reserve final decision on the content of these policies and procedures, pending the outcome of sound analyses and an assessment of how these policies fit within our overall integrated management framework for implementing the Clinger-Cohen Act.

RECOMMENDATION 3: . The GAO recommended that the DoD Chief Information Officer establish or incorporate within existing processes, as practical, the necessary oversight, to ensure that the above recommended department-wide plan and future computer center consolidation, modernization, and outsourcing decisions

- are being developed in accordance with the above policies and procedures,
- are based on a sound analysis of alternatives, and
- consider the goals and needs of the entire department. (p. 32/GAO Draft Report)

Appendix II
Comments From the Department of Defense

DOD RESPONSE: Concur. We concur, in principle, with the recommendation. That is to say, we firmly believe that consolidation/outourcing decisions should be consistent with the policies, and procedures of the framework that we will establish. We are equally as firm in our view that decisions should be based on sound business case analyses, and linked to mission goals and objectives. However, a new group may not be needed. We have a myriad of management oversight bodies already in place. As we implement the Clinger-Cohen Act, one of our guiding principles is to use existing mechanisms to the maximum extent practicable, but not at the expense of ultimately instituting effective and workable solutions.

The following are GAO's comments on the Department of Defense's letter dated March 10, 1997.

GAO Comments

1. We acknowledge that DOD has reported significant savings through its prior consolidation efforts and have expanded the report to reflect the fact that DOD has consolidated 194 DOD computer centers into 16 DISA megacenters, at a reported reduction in processing costs of over \$500 million. (See section entitled, DOD Recognizes Benefits of Further Consolidating, Modernizing and Outsourcing Computer Centers.) As appropriate, we also expanded the report to acknowledge DOD's use of industry practices to help make these reductions. (See section entitled, DOD Lacks Critical Decision-making Tools for Consolidation Efforts.)

2. We agree that DOD needs to determine whether further economies and efficiencies are possible and, if so, what strategies should be employed to reap these savings. The recommendations to DOD and OMB contained in this report are intended to facilitate and guide these determinations.

3. The report fully describes the differing views of DOD and OMB officials for interpreting OMB Bulletin 96-02 in two broad areas: (1) DOD's consolidation plans for its non-mainframe small and mid-tier computer centers and (2) the number of DOD plan submissions required by OMB. In the report, we pointed out that OMB officials did not agree with DOD's interpretation that non-mainframe computer centers should only be included in their inventories but not their consolidation strategies. OMB's position, which we support, is that non-mainframe centers should have been described in DOD's inventories and consolidation strategies, as the purpose of OMB Bulletin 96-02 is to look for ways to consolidate all DOD's computer centers, not just its mainframe computer centers. We made our recommendation that OMB clarify the Bulletin with regard to its mid-tier consolidation criteria in order to preclude any future confusion.

We further recommended that OMB clarify in the Bulletin that while DOD has previously been permitted to provide separate submissions for the three services and for DOD, it should be required to provide a single, integrated submission for the entire Department.

4. We provided and discussed an earlier draft of this report with DOD officials and have incorporated their comments as appropriate to improve the accuracy of the report. The reference in DOD's letter to our handling of the Army's centers in table 2 refers to wording that was provided by the

Army. However, note b to table 2 has been expanded to reflect Army's views that some of its centers provide unique missions (for example, command and control, and National Guard).

5. We did not include DOD's second enclosure in appendix II because it is an annotated copy of this report. This enclosure contained a few technical comments, which we have incorporated into the final report.

Detailed Information About Computer Centers

This appendix provides information on the numbers of mainframes and mid-tier and small processors owned by the services and components.

Table III.1: Number of Mainframes and Mid-tier and Small Processors Owned by the Services and Components

Service/component	Mainframes	Mid-tier/Small
DISA	162	173
Air Force	22 ^a	184
Army	79 ^b	378
Navy	28	107
Defense Commissary Agency	0	20
Defense Intelligence Agency	5	82
Defense Investigative Service	1	4
Defense Logistics Agency	19	84
National Imagery and Mapping Agency	5 ^c	0
Defense Special Weapons Agency	1	27
Total	322	1,059

^aIncludes the exempted computers.

^bOnly 11 Army mainframes are being considered for consolidation. Remaining mainframes will be replaced with minicomputers to support unique local missions, such as civil works, command and control, research and development, etc.

^cOnly one mainframe, with four remote-entry machines.

Source: Agency and component submissions to OMB.

Appendix III
Detailed Information About Computer
Centers

Table III.2: MIPS (Mainframe Operating Capacity) of the Individual Services and Components

Service/component	MIPS
DISA	7,882
Air Force	1,176
Army	4,692 ^a
Navy	195
Defense Commissary Agency	^b
Defense Intelligence Agency	908
Defense Investigative Service	43
Defense Logistics Agency	1,007
National Imagery and Mapping Agency	22
Defense Special Weapons Agency	28
Total	15,953

^aIncludes minicomputers or scientific computing; remaining centers support local or unique missions.

^bThe Defense Commissary Agency does not have any mainframes.

Source: Agency and component submissions to OMB.

Analysis of DOD Service and Component Responses to OMB

The tables that follow summarize our analysis of the extent to which DOD services and components complied with the planning elements called for by OMB.

Table IV.1: DISA's Consolidation Strategy

OMB requirement	Agency response to OMB
Alternatives analysis reflecting the technical feasibility and cost-effectiveness of alternatives—including outsourcing.	DISA did not submit an alternatives analysis to OMB. However, during our review, we found that DISA had analyzed the costs and benefits associated with (1) outsourcing megacenters services and (2) consolidating 16 megacenters into 6 centers.
Architecture design, or technical solution, based on selected data center consolidation alternative, and identifying the receiving and closing data centers and workload realignment as well as the communications architecture.	Technical architecture submitted to OMB was not based on an approved alternative analysis, nor did it identify receiving and closing data centers. Architecture did not address workload realignment or communications architecture.
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources.	No implementation approach submitted to OMB.
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation.	No funding plan submitted to OMB.
Exceptions that could not be included in the consolidation plan.	No exceptions identified to OMB.

Source: DISA consolidation strategy, dated June 6, 1996.

Appendix IV
Analysis of DOD Service and Component
Responses to OMB

Table IV.2: Air Force's Consolidation Strategy

OMB requirement	Agency response to OMB
Alternatives analysis reflecting the technical feasibility and cost-effectiveness of alternatives—including outsourcing.	The Air Force did not submit an alternatives analysis to OMB; however, it did describe plans to move towards a mid-tier architecture for some of its centers and to outsource those centers that cannot be moved to mid-tiers.
Architecture design, or technical solution, based on selected data center consolidation alternative, and identifying the receiving and closing data centers and workload realignment as well as the communications architecture.	The Air Force did not submit an architectural design to OMB, only individual computer center approaches to consolidation.
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources.	A partial implementation approach was submitted to OMB in that schedules and milestones were provided.
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation.	No funding plan submitted to OMB, although some data were provided on estimated savings from consolidation.
Exceptions that could not be included in the consolidation plan.	Exceptions were requested from OMB for the following reasons: 4 centers performed applications programming, 12 centers operated national security systems, 1 center met OMB's exception criteria by having less than five full-time employees, and 2 centers were transitioning to the Air Force Working Capital Fund.

Source: Air Force consolidation strategy, dated September 18, 1996.

Appendix IV
Analysis of DOD Service and Component
Responses to OMB

Table IV.3: Army's Consolidation Strategy

OMB requirement	Agency response to OMB
Alternatives analysis reflecting the technical feasibility and cost-effectiveness of alternatives—including outsourcing.	Alternatives analyses were submitted to OMB for the computer centers Army considered candidates for consolidation or outsourcing: the separate Single Agency Manager computer centers operated by the Air Force and the Army and two Army personnel computer centers. Outsourcing to DISA and leasing were among the alternatives considered.
Architecture design, or technical solution, based on selected data center consolidation alternative, and identifying the receiving and closing data centers and workload realignment as well as the communications architecture.	Architectural designs were submitted for the Single Agency Manager and for the two personnel computer centers.
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources.	A high-level implementation approach was submitted to OMB. Resources, but not schedules and milestones, were submitted for major consolidation tasks.
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation.	A funding plan was not submitted, but Army plans to chargeback costs to customers.
Exceptions that could not be included in the consolidation plan.	Exceptions identified for areas such as National Guard, civil works, intelligence, command and control, research and development, and wargaming. Centers not analyzed for consolidation were reported as centers that support networks or systems in a "distributed environment."

Source: Army consolidation strategies, dated May 3, 1996, and August 2, 1996; further analyses provided for the Single Agency Manager and the personnel centers in July 1996.

Appendix IV
Analysis of DOD Service and Component
Responses to OMB

Table IV.4: Navy's Consolidation Strategy

OMB requirement	Agency response to OMB
Alternatives analysis reflecting the technical feasibility and cost-effectiveness of alternatives—including outsourcing.	Each of 10 Navy commands reported a consolidation strategy for its centers that Navy believed met OMB's criteria for consolidation. Two of these commands, the Bureau of Naval Personnel and the Naval Supply Systems Command, reported that DISA megacenters already processed their information. The Naval Air Systems Command and the Navy Facilities Engineering Command also described plans for DISA to process their information. Two other commands, the Naval Sea Systems Command and the Bureau of Medicine and Surgery, provided alternative analyses supporting their decision to continue to process their information in-house. The remaining four commands did not provide alternative analyses to OMB. ^a
Architecture design, or technical solution, based on selected data center consolidation alternative, and identifying the receiving and closing data centers and workload realignment as well as the communications architecture.	Architectural designs were submitted but were not based on alternatives analyses for four commands.
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources.	Completion dates were provided, but schedules of major consolidation tasks or resource needs were not provided.
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation.	A funding plan was not provided to OMB, but Navy plans to fund its modernization efforts through its information technology budget.
Exceptions that could not be included in the consolidation plan.	Not applicable.

^aIn subsequent discussions, a Navy official explained that an eleventh command, the Atlantic Fleet, operated four of the Navy's computer centers reported in table 2. This command's plan to transfer its centers—all on the Base Realignment and Closure (BRAC) list—to DISA had inadvertently been omitted from the Navy's strategy. Also omitted was the Navy Sea System Command's plans to transfer the processing of its Dahlgren Center to DISA in fiscal year 1998.

Source: Navy consolidation strategy, dated May 22, 1996; addendum provided on August 8, 1996.

Appendix IV
Analysis of DOD Service and Component
Responses to OMB

Table IV.5: Defense Commissary Agency's Consolidation Strategy

OMB requirement	Agency response to OMB
Alternatives analysis reflecting the technical feasibility and cost-effectiveness of alternatives—including outsourcing.	The agency has decided to move to a client/server architecture. No consolidation strategy was submitted for this move. ^a
Architecture design, or technical solution, based on selected data center consolidation alternative, and identifying the receiving and closing data centers and workload realignment as well as the communications architecture.	None submitted.
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources.	None submitted.
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation.	None submitted.
Exceptions that could not be included in the consolidation plan.	No exemptions requested.

^aAccording to DOD officials, the Defense Commissary Agency did not believe it had to submit a consolidation strategy because it only has mid-tier computers.

Source: Defense Commissary Agency consolidation strategy, dated February 14, 1996; mission needs statement for the Agency's Point of Sale Modernization Program, dated May 6, 1994.

Appendix IV
Analysis of DOD Service and Component
Responses to OMB

Table IV.6: Defense Intelligence Agency's Consolidation Strategy

OMB requirement	Agency response to OMB
Alternatives analysis reflecting the technical feasibility and cost-effectiveness of alternatives—including outsourcing.	The agency reported that it met the OMB target MIPS for a minimum size computer center at both of its computer centers.
Architecture design, or technical solution, based on selected data center consolidation alternative, and identifying the receiving and closing data centers and workload realignment as well as the communications architecture.	See above.
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources.	See above.
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation.	See above.
Exceptions that could not be included in the consolidation plan.	See above.

Source: Defense Intelligence Agency consolidation strategy, dated May 7, 1996.

Appendix IV
Analysis of DOD Service and Component
Responses to OMB

Table IV.7: Defense Investigative Service's Consolidation Strategy

OMB requirement	Agency response to OMB
Alternatives analysis reflecting the technical feasibility and cost-effectiveness of alternatives—including outsourcing.	Although the agency meets the minimum target size criteria, it still provided alternatives analyses supporting (1) move from traditional data center to client/server architecture and (2) continuing to process in-house
Architecture design, or technical solution, based on selected data center consolidation alternative, and identifying the receiving and closing data centers and workload realignment as well as the communications architecture.	Not applicable.
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources.	Not applicable.
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation.	Not applicable.
Exceptions that could not be included in the consolidation plan.	Requested exemption because the Service's computer center meets the minimum target size for computer centers.

Source: Defense Investigative Service consolidation strategy, dated May 30, 1996, and Implementation Plan dated August 31, 1996.

Appendix IV
Analysis of DOD Service and Component
Responses to OMB

Table IV.8: Defense Logistics Agency's Consolidation Strategy

OMB requirement	Agency response to OMB
Alternatives analysis reflecting the technical feasibility and cost-effectiveness of alternatives—including outsourcing.	Alternatives analyses were submitted for 3 of the agency's 12 computer centers, with selection of option to consolidate in-house operations. Two of the agency's computer centers were exempt (see below) and another two were designated for BRAC. Alternative analyses were not submitted for the remaining 5 computer centers, which will support the agency's planned Distribution Standard System.
Architecture design, or technical solution, based on selected data center consolidation alternative, and identifying the receiving and closing data centers and workload realignment as well as the communications architecture.	Not submitted for centers that will support the Distribution Standard System because the agency believed these requirements were not applicable to its overall strategy.
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources.	Not submitted for centers that will support the Distribution Standard System because the agency believed these requirements were not applicable to its overall strategy.
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation.	Not submitted for centers that will support the Distribution Standard System because the agency believed these requirements were not applicable to its overall strategy.
Exceptions that could not be included in the consolidation plan.	Two of the agency's computer centers meet OMB's target size for computer centers.

Source: Defense Logistics Agency's consolidation strategy, dated July 1, 1996.

Appendix IV
Analysis of DOD Service and Component
Responses to OMB

Table IV.9: National Imagery and Mapping Agency's Consolidation Strategy

OMB requirement	Agency response to OMB
Alternatives analysis reflecting the technical feasibility and cost-effectiveness of alternatives—including outsourcing.	Alternatives analyses were not submitted, but the agency plans to transition processing from remaining agency computer centers to DISA megacenters by the middle of fiscal year 1998.
Architecture design, or technical solution, based on selected data center consolidation alternative, and identifying the receiving and closing data centers and workload realignment as well as the communications architecture.	See above.
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources.	Broad milestones for transition were provided, but no additional information.
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation.	A funding plan was not provided to OMB. The agency plans to provide OMB with a funding plan if DISA can process its applications.
Exceptions that could not be included in the consolidation plan.	None requested.

Source: National Imagery and Mapping Agency's consolidation strategy, dated May 3, 1996, and the agency's implementation plan (not dated).

Appendix IV
Analysis of DOD Service and Component
Responses to OMB

Table IV.10: Defense Special Weapons Agency's Consolidation Strategy

OMB requirement	Agency response to OMB
Alternatives analysis reflecting the technical feasibility and cost-effectiveness of alternatives—including outsourcing.	Agency conducted an alternatives analysis to support the consolidation of its information processing in-house. Alternatives such as commercial outsourcing were not considered because of the agency's command, mission, and security considerations.
Architecture design, or technical solution, based on selected data center consolidation alternative, and identifying the receiving and closing data centers and workload realignment as well as the communications architecture.	A complete architectural design was provided.
High-level implementation approach identifying major consolidation tasks and presenting a schedule, milestones, and resources.	A complete high-level response was provided.
Funding plan identifying and forecasting costs associated with the consolidation process and funding requirements for all major tasks associated with the consolidation.	A complete funding plan was provided.
Exceptions that could not be included in the consolidation plan.	None requested.

Source: Defense Special Weapons Agency's consolidation strategy, dated August 16, 1996.

Major Contributors to This Report

Accounting and
Information
Management Division,
Washington, D.C.

William D. Hadesty, Technical Director
Robert C. Sorgen, Evaluator-in-Charge
Danny R. Latta, Technical Advisor
Cristina T. Chaplain, Communications Analyst

Office of the General
Counsel

Frank Maguire, Senior Attorney

Office of the Chief
Economist

Harold J. Brumm, Jr., Senior Economist

Kansas City Regional
Office

Karl G. Neybert, Evaluator